

In The Claims

Please amend the following claims as shown:

1. (Currently amended) An apparatus for treating waste comprising:
 - (a) a vessel; and
 - (b) at least two AC plasma torches mounted with the vessel, wherein at least one of the AC plasma torches each include a variable emits a flame using a torch gas with a flow rate, wherein the flame can be varied according to the waste being treated by adjusting a current applied to the AC plasma torch or by adjusting the flow rate of the torch gas.
2. (Original) The apparatus for treating waste of claim 1 wherein the vessel contains an open space and includes a bowl-shaped portion.
3. (Original) The apparatus for treating waste of claim 2 wherein the AC plasma torches are mounted with the vessel such that they do not penetrate the open space contained in the vessel.
4. (Original) The apparatus for treating waste of claim 2 wherein the vessel is generally a horizontally oriented structure.
5. (Currently amended) An ~~The~~ apparatus for treating waste ~~of claim 3~~ comprising:
 - (a) a vessel that contains an open space and includes a bowl-shaped portion; and
 - (b) at least two AC plasma torches mounted with the vessel, wherein the AC plasma torches each include a variable flame and are mounted with the vessel such that they do not penetrate the open space contained in the vessel, wherein the AC plasma torches include a torch gas that has a flow rate, and wherein the flow rate of the torch gas can be adjusted to vary the flames of the AC plasma torches.
6. (Currently amended) An ~~The~~ apparatus for treating waste ~~of claim 3~~ comprising:
 - (a) a vessel that contains an open space and includes a bowl-shaped portion; and
 - (b) at least two AC plasma torches mounted with the vessel, wherein the AC plasma torches each include a variable flame and are mounted with the vessel such that they do not penetrate the open space contained in the vessel, wherein a current is applied to the AC

plasma torches, and wherein the current can be adjusted to vary the flames of the AC plasma torches.

7. (Currently amended) ~~An~~ The apparatus for treating waste of ~~claim 3~~ further comprising:

(a) a vessel that contains an open space and includes a bowl-shaped portion;

(b) at least two AC plasma torches mounted with the vessel, wherein the AC plasma torches each include a variable flame and are mounted with the vessel such that they do not penetrate the open space contained in the vessel; and

(c) at least one door that can separate one of the plasma torches from the open space in the vessel.

8. (Original) The apparatus for treating waste of claim 4 wherein the AC plasma torches are vertically mounted on the vessel with the flames generated by the AC plasma torches extending down through the open space and contacting the bowl-shaped portion of the vessel.

9. (Original) The apparatus for treating waste of claim 8 further comprising a feeding system connected to the vessel comprising a charging hopper and a feeding hopper, wherein the feeding hopper includes an airlock door on a side through which waste can be introduced into the feeding hopper.

10. (Original) The apparatus for treating waste of claim 9 further comprising a purging system connected to the feeding system.

11. (Original) The apparatus for treating waste of claim 10 further comprising at least one tap positioned in the vessel through which treated waste may be drained.

12. (Currently amended) ~~An~~ The apparatus for treating waste of ~~claim 11~~ further comprising:

(a) a vessel that contains an open space and includes a bowl-shaped portion, wherein the vessel is generally a horizontally oriented structure;

(b) at least two AC plasma torches mounted with the vessel, wherein the AC plasma torches each include a variable flame, wherein the AC plasma torches are vertically mounted

on the vessel with the flames generated by the AC plasma torches extending down through the open space and contacting the bowl-shaped portion of the vessel;

(c) a feeding system connected to the vessel comprising a charging hopper and a feeding hopper, wherein the feeding hopper includes a airlock door on a side through which waste can be introduced into the feeding hopper;

(d) a purging system connected to the feeding system;

(e) at least one tap positioned in the vessel through which treated waste may be drained; and

(f) at least one solid residue handling system comprising a tap cart connected to the tap.

13. (Original) The apparatus for treating waste of claim 12 wherein at least two taps are positioned in the vessel.

14. (Original) The apparatus for treating waste of claim 13 further comprising:

(a) a disinfectant system connected with the feed system; and

(b) a vent system interconnecting the feed system and the vessel.

15. (Original) The apparatus for treating waste of claim 14 further comprising:

(a) a venturi flow meter connected with the vessel.

16. (Original) The apparatus for treating waste of claim 15 further comprising:

(a) a quencher connected with the vessel;

(b) a recirculation tank connected with the quencher;

(c) a scrubber connected to the recirculation tank;

(d) a water supply system connected to the recirculation tank; and

(e) a neutralizing agent supply system connected to the recirculation tank.

17. (Original) The apparatus for treating waste of claim 16 further comprising:

(a) a wastewater treatment system connected with the recirculation tank; and

(b) a particulate recycling system connected with the wastewater treatment system.

18. (Currently amended) A method for treating waste comprising:
- (a) providing an AC plasma torch with a variable flame, wherein the AC plasma torch includes a torch gas with a flow rate, and wherein a current is applied to the AC plasma torch;
 - (b) providing waste;
 - (c) adjusting the flame in accordance with a type of waste to be treated by adjusting the current applied to the AC plasma torch or by adjusting the flow rate of the torch gas; and
 - (d) heating the waste with energy generated by the flame.
19. (Original) The method for treating waste according to claim 18 wherein the waste is comprised of solid waste and liquid waste.
20. (Original) The method for treating waste according to claim 18 further comprising:
- (a) melting or vitrifying the waste;
 - (b) forming a pool of the melted or vitrified waste; and
 - (c) quenching the melted or vitrified waste.
21. (Original) The method for treating waste according to claim 20 further comprising:
- (a) dissociating the waste into elemental components;
 - (b) gasifying the waste; and
 - (c) reforming the elemental components as carbon monoxide gas and hydrogen gas.
22. (Original) The method for treating waste according to claim 21 wherein the step of dissociating the waste destroys the hazardous constituency of at least part of the waste and is accomplished through pyrolysis of the waste.
23. (Original) The method for treating waste according to claim 22 further comprising:
- (a) providing oxygen; and
 - (b) combining the oxygen with the elemental components to form carbon monoxide gas.

24. (Original) The method for treating waste according to claim 23 further comprising:
- (a) providing excess oxygen; and
 - (b) combining the oxygen with the elemental components to form carbon dioxide gas.
25. (Original) The method for treating waste according to claim 24 further comprising:
- (a) cooling the carbon monoxide gas and hydrogen gas;
 - (b) removing carbon particulate from the carbon monoxide gas and hydrogen gas;
- and
- (c) neutralizing any acid gases contained with the carbon monoxide gas and hydrogen gas.
26. (Currently Amended) A ~~The method for treating waste according to claim 25 further comprising:~~
- (a) providing an AC torch with a variable flame;
 - (b) providing waste;
 - (c) adjusting the flame in accordance with a type of waste to be treated;
 - (d) adding a reducing agent or fluxing agent to the waste before performing step
 - ~~(e) the step of heating the waste with energy from the flame;~~
 - (e) heating the waste with energy generated by the flame;
 - (f) melting or vitrifying the waste;
 - (g) forming a pool of the melted or vitrified waste;
 - (h) quenching the melted or vitrified waste;
 - (i) dissociating the waste into elemental components, wherein the step of
dissociating the waste destroys the hazardous constituency of at least part of the waste and is
accomplished through pyrolysis of the waste;
 - (j) gasifying the waste;
 - (k) reforming the elemental components as carbon monoxide gas and hydrogen
gas;

- (l) providing oxygen;
- (m) combining the oxygen with the elemental components to form carbon monoxide gas or carbon dioxide gas;
- (n) cooling the carbon monoxide gas and hydrogen gas;
- (o) removing carbon particulate from the carbon monoxide gas and hydrogen gas;
- and
- (p) neutralizing any acid gases contained with the carbon monoxide gas and hydrogen gas.

27. (Original) The method for treating waste according to claim 26 wherein the treatment of the waste results in a synthesis gas with about 45-55% hydrogen gas and about 30-40% carbon monoxide gas.

28. (Currently amended) A method for treating waste comprising:

- (a) providing waste, wherein the waste includes an inorganic portion and an organic portion;
- (b) providing a vessel with at least two AC plasma torches mounted therein;
- (c) introducing the waste into the vessel;
- (d) generating a flame with one of the AC plasma torches; ~~and~~
- (e) varying the flame according to the waste being treated by adjusting a current applied to the AC plasma torch; and
- (f) heating the waste with the energy from the flame.

29. (Original) The method for treating waste according to claim 28 further comprising:

- (a) melting or vitrifying the inorganic portion of the waste; and
- (b) gasifying and dissociating the organic portion of the waste.

30. (Original) The method for treating waste according to claim 29 wherein the steps (a) and (b) are performed simultaneously.

31. (New) The apparatus for treating waste of claim 5 wherein the flames of the two AC plasma torches are generated simultaneously.

32. (New) The apparatus for treating waste of claim 5 further comprising at least one door that can separate one of the AC plasma torches from the open space in the vessel.
33. (New) The apparatus for treating waste of claim 6 further comprising a feeding system connected to the vessel comprising a charging hopper and a feeding hopper, wherein the feeding hopper includes an airlock door on a side through which waste can be introduced into the feeding hopper.
34. (New) The apparatus for treating waste of claim 33 further comprising a purging system connected with the feeding system.
35. The apparatus for treating waste of claim 34 further comprising a disinfectant system connected with the feed system.
36. (New) The apparatus for treating waste of claim 6 wherein the AC plasma torches are vertically mounted on the vessel with the flames generated by the AC plasma torches extending down through the open space and contacting the bowl-shaped portion of the vessel.
37. (New) The apparatus for treating waste of claim 6 further comprising at least two taps positioned in the vessel.
38. (New) The apparatus for treating waste of claim 6 further comprising an access and viewing port on the vessel.
39. (New) The apparatus for treating waste of claim 6 further comprising an oxidant within the vessel.